LETTER TO THE EDITOR
Iran J Allergy Asthma Immunol
March 2008; 7(1): 45-46

Role of *Chlamydia pneumoniae* Infection in Asthma in Northeast of Iran

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Received: 22 May 2007; Received in revised form: 10 November 2007; Accepted: 28 October 2007

ABSTRACT

The role of *Chlamydia pneumoniae* in asthma has drawn much attention in recent years. In this study we assessed the prevalence of *C. pneumoniae* infections in patients with chronic stable and acute exacerbation of asthma and compared it with normal population. Twenty adult patients with chronic stable asthma and 21 patients with acute exacerbations of asthma and 41 matched control subjects were studied for presence of *C. pneumoniae* using cell culture. This study suggests that positive results of *C. pneumoniae* culture are associated with both chronic stable and acute exacerbation of asthma. It could be concluded that *C. pneumoniae* is a risk factor for either development or exacerbation of asthma.

Key words: Asthma; *Chlamydia pneumonia*; Culture

LETTER

The worldwide high prevalence of asthma and the impact of the disease on quality of life, have led to numerous investigations on the cause of this disease. Recently Chlamydial infection has been suggested to participate in the pathophysiology of asthma.[1-3] Considering conflicting data about frequency of *C pneumonia* in asthmatic subjects and, regarding that no such study has been done in Middle East, we assessed the prevalence of *C. pneumoniae* infections in well defined patients with chronic stable and acute exacerbation of asthma and compared it with general population.

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Culture was used to study the role of Chlamydia pneumonia in asthma among 21 patients whom were admitted as asthma exacerbation and 20 patients with chronic stable asthma in Mashhad University of Medical Sciences, Iran during Feb. 2005 to May 2005. Pair matched healthy control subjects were also chosen for each of these groups. All subjects were examined by the physician and routine questionnaire were completed. Nasopharyngeal epithelial cells, which were obtained with a swab, were used for culture. Specimens were inoculated into cycloheximide-treated monolayers of McCoy cells in tissue culture vessels within 1 h of collection. A positive cell culture was defined when any specimen yielded one or more fluorescent-antibody-stained inclusions in either the primary or the second passage. For increasing reliability, all processes were performed blind. In this study the differences between groups were determined using the Chi square test (SPSS 11.5). For all analyses the level of significance was defined as a P value of 0.05 or less.

Among two asthma groups 47.6% and 35% had positive culture results while about 14.3% and 5% of control subjects had positive results. P-value was statistically significant in asthmatic exacerbation patients (Table 1). The same has been true about the chronic stable asthma group in comparison with its control group (Table 1).

In confirming the cause and effect relationship between *C. pneumoniae* and asthma three conditions should be met: (a) higher frequency of *C. pneumoniae* in asthmatic patients in comparison with control subjects, (b) the presence of *C. pneumoniae* and it's quantity, must be related to the severity of disease and (c) successful eradication of *C. pneumoniae*, should be accompanied with clinical improvement. While for *C. pneumoniae* neither of these conditions has been met consistently. In this study we assessed the first condition in both exacerbation and chronic stable asthma. Its also worth mentioning that, we did not consider severity of asthma in evaluating *C. pneumoniae* infection rate, while some authors studied *C. pneumoniae* role in severe asthma,[4-6] thus we are not to question or discredit the relationship between *C. pneumoniae* and severe asthma pathogenesis.

While many studies raised question about possible association of *C. pneumoniae* seroprevalence and asthma pathogenesis[7,8] and even some like Brouard *et al*[9] discredit any association between *C. pneumoniae* and asthma exacerbation, our study like many other studies found a significant relationship between asthma and this microorganism.[2,10]

More over Araafa *et al*[6] found *C. pneumoniae* is related with more severe forms of asthma.

In conclusion, considering significant difference of *C. pneumoniae* infection rates, among asthmatic patients with control subjects and also, regarding high *C. pneumoniae* infection rate in case groups, we deduced that *C. pneumoniae* is a contributing factor in asthma pathogenesis, therefore eradication may be beneficial in asthmatic patients.

ACKNOWLEDGEMENTS

The Office of Research Affairs of Mashhad University of Medical Sciences has provided financial support for this research. The authors would like to thank M. Aalami for his valuable assistance in data collection.

Table 1. The result of tests among cases and their control group.

	Mean age (years)	Sex (M/F)	Number of positive result (percent) *	P-value
Asthma exacerbation	44.42±14	8/13	10 (47.6%)	0.019
Control group for asthma exacerbation	44.42±14	8/13	3 (14.3%)	
Chronic stable asthma	42.00±17	7/13	7 (35%)	0.01
Control group for chronic stable asthma	42.00±17	7/13	1 (5%)	

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